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Earnings Disparities and Income Inequality in CEE Countries

An Analysis of Development and Relationships

ABSTRACT: *The potential provided by survey data for studying simultaneous changes in earnings disparities, inequality of household income, and the connections between them has thus far been underexploited. This paper presents various data on four Central and East European (CEE) countries, as well as some data on Austria and Germany for the sake of comparison. First, it compares the changes in both distributions over time since the communist period as reported in various sources to see how much disparities and inequality increased during the transition. Second, it presents the attempts that have been made so far to analyze the connections between the two distributions and examines how the relationship between personal and household earnings should be analyzed and what we know about its development. Third, it presents the changing links between earned and disposable income in CEE countries, using Luxembourg Income Study data as a historical baseline and the Statistics on Income and Living Conditions (EU-SILC) data for the present time to determine how strong the association was and currently is, and how the countries differ in packaging family income. Various sources confirm that earnings disparities and income inequality rose at least to some degree in all four CEE countries after 1989. This is apparent in the individual countries in various phases of their transitions. In contrast, no increase occurred from 2004 to 2007, according to the EU-SILC surveys.*

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In the literature on income inequality, there seems to be a gulf between the analysis of personal earnings and household income. The usual topic in labor economics is the distribution of personal earnings and its determining factors, particularly education. Social policy research focuses mainly on income inequality among households, and the factors behind poverty and ways of reducing it. Rare are the studies that survey both distributions side by side and analyze the relationship between the two. As an Organization for Economic Cooperation and Development (OECD) report states, "analyses of earnings and income distribution typically develop along parallel tracks, using different methodologies to address different questions" (2008, p. 92).

Unlike this division in the field of economics and social policy analysis, in the real world, the decisions and strategies connected to household budgets occur within a single unit—the family or household. A family's living standard depends on many circumstances: from the educational and occupational paths that individuals select, to the formation of couples by selective mating, to the decisions—subject to constraints—that a husband and wife make to shape and balance their careers, the timing and number of children they have, and how they balance work and family commitments. Last but not least, the tax and social benefit policies of the state also considerably affect the disposable income of families.

The separation of the two fields is linked not just to the specific approaches used and questions raised in each field, but also to their sources of data, which in the past were different—wage surveys versus household income surveys. In recent decades, however, this has only partly been true. Income surveys among households also often contain personal data, which allow a comparison of the personal and the household perspectives. For cross-national comparison, the two perspectives can be compared over several decades using the Luxembourg Income Study (LIS) data archive.[1] Since 2005, personal and household files are both included in the Statistics on Income and Living Conditions (EU-SILC) surveys, which are applied uniformly in all member states under the direction of Eurostat.

This paper compares the changes in both distributions over time since the communist period and as reported in various sources, presents some of the methodological and empirical attempts made so far to analyze the connections between the two distributions, and then presents the changing links between earned and disposable income in Central and Eastern European (CEE) countries using LIS data for the past and EU-SILC data for the present time. Two perspectives (observation units) are used: employed persons (looking at the contribution of their earnings to budgets of the households they live in) and employee households (decomposing inequality of their household income by source).

The Communist Period and the Early Transition: Separate and Disparate Observations

The availability of income data for the communist period and early 1990s is limited. This is not because they were not collected but because they were not made available

for research due to restrictions at the time. Nevertheless, there was a substantial amount of data on income and the data were of good quality, something that surprised even the authors of the most outstanding literature about income inequality under the communist regime. Using tables produced by national statistical offices, Atkinson and Micklewright (1992) sourced the best possible secondary data on earnings and household income.

National surveys of CEE countries collected after 1990 are stored in the LIS database. Currently, the database contains several waves of the survey for the Czech Republic (1992, 1996, and 2002), Hungary (1991, 1994, and 1999), Poland (1986, 1992, 1995, 1999, and 2004) and Slovakia (1992 and 1996, but only the household file in the latter case). Unfortunately, Czech and Slovak data from the large 1988 Microcensus could not be stored in the LIS database.

The first comprehensive comparison of pretransition (1987–88) and posttransition (1993–95) inequality in household income was made by Milanovic (1998) for eighteen postcommunist states, including the Czech Republic, Hungary, Poland, and Slovakia. Using mostly household budget surveys, he found a significant increase of inequality in three of those CEE countries, the exception being Slovakia. The largest increase was found in the Czech Republic. In contrast, using the LIS database, Hölscher (2006) stated that in the Czech Republic, Hungary, and Poland, income distribution remained relatively stable before and throughout the transition period. The reason for the divergence in the findings might be that unlike other authors, Hölscher applied the concept of gross household income.

The LIS Inequality and Poverty Key Figures (www.lisdatacenter.org/data-access/key-figures/download-key-figures/) provided by LIS staff report a considerable increase in income inequality in the Czech Republic and Slovakia, which is consistent with other sources of data that used the same income surveys on large samples of households. Data on Hungary (1991–1999) suggest decreasing inequality, while data on Poland indicate rising inequality: Poland's Gini coefficient, the highest among CEE countries, was 0.32 in 1995, and, though it dropped slightly thereafter, it reached that level again in 2004. Parallel data on disparities in earnings are not published by the LIS, but we can compute them using this database.

The most comprehensive and remarkably detailed figures on disparities in earnings in twenty OECD countries, including the Czech Republic, Hungary, and Poland, were collected by Atkinson (2008). In describing disparities, he applied quantile characteristics, which allowed him to interpolate wherever only rough data on income bands were available. Regarding the three CEE countries, he concluded that they "all showed a move towards increased earnings dispersion with the transition to a market economy, but there are differences, dispersion being less, and more stable, in the Czech Republic than in Hungary and Poland" (Atkinson 2008, p. 52).

Long-term, regularly updated time series are provided by the TransMONEE Database compiled by the UNICEF Innocenti Research Center in Florence using reporters from individual countries (www.transmonee.org). Regarding comparative

levels of disparities in earnings, the TransMONEE data correspond roughly to what Eurostat reported in its Structure of Earnings Survey 2002, which collected data on gross earnings and earnings disparities in the "Industry and Services" sector (Eurostat 2006). The decile ratio, which was published only in Eurostat's tables, was 3.0 for the Czech Republic, 4.2 for Hungary, 4.5 for Poland, 3.4 for Slovakia, 3.3 for Austria, and 3.6 for Germany.

The TransMONEE database, in its per capita income section, was challenged by Mitra and Yemtsov, who constructed an indicator of "consistent per capita consumption" (2006, p. 10), which they consider much better for cross-national comparison. Hungary and Poland are the only CEE countries included among the many countries dealt with by the authors. In both countries, inequality was computed to be lower than what was found in the TransMONEE database, but the increase from the early 1990s to 2002 was about the same in Poland and was slightly less significant in Hungary. Czech data on household income in the TransMONEE database differ from data provided by income surveys, which show a rapid increase in earnings inequality in the early 1990s and stability since then.

A consistent time series on CEE and Baltic countries, based on the World Bank's *Life in Transition Survey* and EU-SILC data, was presented by Zaidi (2009). The Czech Republic, Hungary, and Poland (data for Slovakia were presented for the year 2006 only) witnessed an increase in inequality of per capita household income between 1987 and 1990 and in 2006, as measured by the Gini coefficient. The highest was in Hungary (occurring mostly in the period between 1996 and 1999 and in 2006); the Czech Republic was in the middle (located mostly in the period between 1987 and 1990, and between 1993 and 1994); and the lowest was in Poland, where, however, the original inequality was the highest.

Finally, the EU-SILC*,* which cover all EU countries, have been available since 2005; the first records on incomes concern 2004. The cross-national data sets are produced by Eurostat from national surveys conducted using uniform questionnaires. The data sets are collected from a rotating panel sample, in which each household is surveyed for four consecutive years. Several comparative computations have already been made using these data sets, most of them returning consistent if not strictly identical results (Eurostat 2010; OECD 2008; Tárki 2009; Večerník 2009).

The Gini coefficients provided by various sources are presented in Table 1. The data differ, but for the most part, the differences are negligible. The only parts raising doubts are the jumps up or down in the TransMONEE database. In sum, it is difficult to formulate unambiguous conclusions, other than to say that both kinds of distributions were moving toward greater inequality, at least up until a certain moment, which differs in individual countries. The observation of the increase in inequality is accepted by most authors regarding development in the first half of the 1990s. Some disagreement exists over developments in the later phase as to whether inequality increased further, remained stable, or decreased.

In their analysis of household panel survey data from twenty-six postcommunist countries covering the entire 1990–2005 period, Milanovic and Ersado (2008) spoke

Table 1. **Change in Earnings Disparities and Household Income Inequality Since 1990 According to Various Sources** (Gini coefficients)

	Czech Republic	Hungary
Personal earnings		
LIS	0.27 in 1992, 0.28 in 1996, 0.26 in 2002	0.28 in 1991, 0.28 in 1999, 0.32 in 2005
TransMONEE	Jumps up in 1993 and 1995, falls in 1996, slightly increases in the 2000s to 0.27	A fast and steady increase beginning in 1990; the series ends by 2001 on 0.39
Atkinson	A fast increase in 1990-1995, a very slow increase since then	As in the TransMONEE database, the rise continues after 2001; the time series ends in 2003
EU-SILC	0.28 in 2004 and 0.28 in 2007	0.37 in 2004 and 0.35 in 2007
Adjusted household income*		
LIS	An increase from 0.21 in 1992 to 0.26 in 1996	A decrease from 0.32 in 1991 to 0.28 in 1994, followed by stability: 0.29 in 2005
TransMONEE	A slow increase with single increases in 1990-1998, a faster increase since then, jumping in 1999 and 2005 to 0.26	A steady increase 1991-2005 from 0.21 to 0.28
Zaidi	A fast increase from 0.19 in 1987-90 to 0.27 in 2006	A fast increase from 0.21 in the period 1987-1990 to 0.34 in 2006
EU-SILC	From 0.26 in 2004 to 0.25 in 2006 (0.26 in 2007)	From 0.28 in 2004 to 0.26 in 2006 (0.25 in 2007)
	Poland	Slovakia
Personal earnings		
LIS	0.28 in 1992 and 1995, 0.35 in 2004	0.28 in 1992 (personal file is missing for 1996)
TransMONEE	A fast increase from 1990-1996 and again in the 2000s; the series ends in 2004 at 0.35	Missing data
Atkinson	Jumps upwards in 1991 and 1994, a steady rise since then; the last year available is 1999, with Gini of 0.31	Missing data
EU-SILC	From 0.38 in 2004 to 0.37 in 2007	From 0.29 in 2004 to 0.27 in 2007

(continues)

Table 1. *(Continued)*

	Poland	Slovakia
Adjusted household income*		
LIS	An increase from 0.27 in 1992 to 0.32 in 1995 and from 0.29 in 1999 to 0.32 in 2004.	An increase from 0.19 in 1992 to 0.24 in 1996.
TransMONEE	An increase from 0.27 in 1990 to 0.37 in 2004, then a decrease to 0.35 in 2007	An increase from 0.24 in 1996 to 0.30 in 2003, then a decrease to 0.24 in 2007.
Zaidi	An increase from 0.28 in the period 1987-1990 to 0.33 in 2006	Missing data
EU-SILC	From 0.36 in 2004 to 0.32 in 2006 (0.33 in 2007)	From 0.26 in 2004 to 0.24 in 2006 (0.24 in 2007)

Sources: Atkinson 2008; EU-SILC surveys (income inequality 2004–6 from Eurostat's publications, figures on personal earnings and equivalent income inequality in 2007, in parentheses, are based on the author's calculations); Eurostat 2010, p. 281; LIS database (author's computations); LIS Inequality and Poverty Key Figures; TransMONEE 2009 Database (release of May 2009); Zaidi 2009.

* The adjustment of disposable household income differs in individual databases. In the LIS database, equivalized income is equal to gross household income divided by the square root of the number of persons in the household. In the TransMONEE database, income per capita is measured. In Zaidi 2009 and the EU-SILC data presentation, the standard EU adjustment to household size is applied, assigning a weight of 1 to the first adult household member, 0.5 to each additional adult member, and 0.3 to each child. Adult members are age fourteen and older, while children are thirteen and under.

of unprecedented increases in inequality in most transition economies up to about 1995–97, then stabilization and subsequently, even slight decreases in inequality. Giammatteo stated that many of the studies covering the 1990s concluded that increasing income inequality during the first half of the 1990s was followed by a continuous decrease until the end of the decade, such that "around 2000 income differences were lower than the five previous years but still higher than 1990" (2006, p. 1). This is, however, not a convincing result.

The evidence we collected does not indicate any decrease until the mid-2000s. However, EU-SILC surveys launched in 2005 signal a decrease in income inequality in CEE countries, which appears quite significant in Poland. In contrast, Mitra and Yemtsov (2006) argue that rather than decreasing income inequality, a further rise in inequality is also possible in transition countries, depending on both transition-related factors (the evolution of the education premium, the bias in the investment climate against new private firms, and regional impediments to mobility of goods and labor) and, increasingly, technological change and globalization.

The other message of Table 1 is that developments in inequality in earnings and household income are mostly parallel. The link between the two is determined by the higher wage dispersion that the higher demand for skilled workers causes. To say more about the link between earnings and family income requires the use of consistent data sources that include both personal and household files. There are two sources that meet these requirements: the LIS database of income surveys, and national surveys that are standardized and conducted under the umbrella of the EU-SILC. The first source is used for historical comparison with the recent figures found in the second. Before analyzing them, we should devote some attention to what can be found in literature on the topic.

The Links Between Personal and Household Income: Previous Research

As documented above, the difficulties involved in working with data on earnings and household income start with the production of a simple time series of earnings distribution. Different sources are not always consistent and the results sometimes vary. The study of the intermediate structures between personal earnings and household income is a complex matter that can be tackled by various methods.

The problems of the transition from personal earnings to household income are summarized well by Gottschalk and Smeeding:

> The expansion from individual earnings to household disposable income . . . raises a whole host of analytical as well as measurement issues. Economic and demographic decisions within the household are endogenous and so complex that empirical research is far from being able to sort out the linkages. . . . The problem of endogeneity is further aggravated by the expansion to the international context. Social and political institutions that may affect how other household members and government taxes and transfers respond to changes in market conditions differ considerably across countries. (1997, p. 635)

While there are only a few problems involved in defining earnings, it is difficult to capture all the diversity that we face when looking for the "appropriate" definition of disposable income or, better put, a household's well-being. Family income has to be adjusted by household size and composition—a task that can never be completed satisfactorily with one, across-time and cross-nationally universal indicator. The various constituents of adjustment usually include the degree of economic activity of the adult members of the household and the number and ages of the children, but theoretically they should also include variations in the cost of living by type of housing, type of locality, and regional specificities.

As mentioned above, most of the literature in the broad field of economic inequality falls into one of two separate streams and thus focuses on earnings disparities or inequality of household income. Occasionally, however, both distributions are compared.

Atkinson and Micklewright (1992) collected information about both kinds of distribution in their study on transition countries under the communist regime and in the early transition. They could not study the link between these two kinds of distribution any more closely because they had nothing other than statistical tables at their disposal for analyzing income inequality. Later, Micklewright and Flemming (2000) paralleled earnings and household income in their chapter on income distribution during the transition in the *Handbook of Income Distribution.*

In their study of inequality in earnings and family income in the United States, Gottschalk and Danziger (2005) discovered a similarity in the timing of changes in earnings and income on four distinct distributions: the distribution of hourly wage rates, the distribution of annual earnings of individuals, the distribution of annual earnings of families, and the distribution of total family income adjusted for family size. They found that during the period 1975–2002, "male wage inequality and inequality of family income closely mirror each other" (Gottschalk and Danziger 2005, p. 253).

In an effort to inspect the sources of income inequality, decomposition analysis was often applied to household data sets containing information about the economic status and incomes of adult family members and to other income sources. This method, which was introduced by Lerman and Yitzhaki (1985) and Stark et al. (1986), makes it possible to determine the impact of a particular income source on total net income inequality as represented, most often, by the Gini coefficient. The main problem that decomposition analysis has been used to address is the degree to which the redistribution system counteracts the effect of increasing disparities in market income. This method has also been used several times on individual CEE countries or selected groups of them.

Mitra and Yemtsov (2006) applied decomposition analysis to examine changes in income inequality in Hungary, Poland, and countries of the former Soviet Union by both income source and socioeconomic group (regions and educational categories). They found that the increase in inequality differed substantially across countries, with the size and speed of its evolution depending on the relative importance of changes in wage distribution, employment, entrepreneurial incomes, and social benefits. While in Poland the increase in inequality has been steady but gradual and reflects larger changes in employment and compensation benefits, there was an explosive rise in inequality in Russia, which peaked in the mid-1990s before attenuating as wage arrears were extinguished during its post-1998 recovery.

The decomposition method was also used by Jedrzejczak (2008), who found that the main sources of disposable income inequality in Poland are disparities in earnings, while pension and social benefits are negatively correlated with it. Piotrowska (2009) analyzed LIS data for the Czech Republic, Hungary, and Poland. Like others, she found that increased wage differentials are an important determinant of increasing inequality and that incomes from self-employment and entrepreneurial activity in the private sector have introduced more inequality.

Capital incomes have contributed substantially to the growth in inequality, while farm incomes and pensions have had only a weak effect.

Kattuman and Redmond (2001) used family budget data to examine changes in household income inequality in Hungary from 1987 to 1993. They found that public policy inhibited the increase in inequality in the first period, but this was followed by a sharp increase later. Further, they updated the findings and compared them with the United Kingdom (Redmond and Kattuman 2001). While households with and without employed members were considerably polarized in the United Kingdom in the mid-1990s, this was less of a feature in Hungary, in spite of the massive withdrawal of men and women from the labor market between 1987 and 1995. Rather, a narrowing of the gender pay gap and a continuously high level of female employment made the distribution of household earnings and disposable income more equal in Hungary than in the United Kingdom.

Garner and Terrell (1998) used family budget data for the Czech Republic and Slovakia from 1989 to 1993, finding only very little rise in income inequality in both countries. Using a decomposition analysis of changes in the channels of redistribution, they found that the sizable increase in earnings disparities was mitigated by changes in the tax and transfer components. But in a later paper (Garner and Terrell 2001), which focused solely on Slovakia, they found that the increase in earnings disparities caused a large increase in inequality between 1988 and 1996, despite the mitigating impact of social payments and individual's decisions about household formation.

Milanovic (1999) also used family budget data to analyze different factors of the change in household income inequality, such as wages, pensions, and family social transfer income, for the periods 1987–89 and 1995–96 in six transition countries, including Hungary and Poland. He identified disparities in earnings (measured in total for all household members) as the main factor of rising income inequality: the increasing wage concentration was responsible for increases of 5.5 Gini points in Hungary and 7.9 Gini points in Poland (Milanovic 1999, p. 319).

Giammatteo (2006) examined inequality patterns in the 1990s in Poland, Russia, and Hungary using the LIS database. He applied three different definitions of income (market, gross, and disposable) and decomposed inequality by income components. The effect transfers had of decreasing inequality proved to be robust.

An OECD project launched in 2008 marked a crucial step in building an analytical bridge between the two distributions. The transmission of inequalities from individual earnings to household earnings and the transmission of inequalities from household earnings to disposable household income were examined in an OECD study (2008). The project launched by this study broke down inequalities in household income by underlying income source to make it possible to determine the extent to which income components, particularly labor earnings and government transfers, contribute to rising income inequality (OECD 2009).

Transitional Changes and the Current Situation: The LIS and the EU-SILC Evidence

Here we use two sources of data to observe the links between personal and household income. The first, for historical comparison, is the LIS database, which stores standardized national files of various income surveys. The second, to complete the time series and provide a more detailed cross-sectional analysis, is the EU-SILC, which is a uniformly designed survey across the European Union and some other countries. While LIS data became available for the transition countries in the early 1990s, the EU-SILC starts with information on income from 2004 (survey of 2005) and ends, in this paper, with information on 2007 income (survey of 2008).

Both databases make it possible to look at the relationship between earnings and income from the two—person and household—perspectives. For the sake of better comparability, our analysis is limited to employees and omits the self-employed and farmers. The problem with the latter two categories is that they do not report earned income consistently across time and countries. The calculation of disposable household income may also be biased in their case. Limited to employees, personal earnings is the gross wage from salaried employment. Household income is measured in three concepts: total disposable income of the household, income per capita, and income adjusted to the equivalence scale adopted in the EU documents.

To obtain the perspective of individuals, we ask how well people with different earnings levels do after all the intermediate processes that affect households have been taken into account. This means after deducting taxes, adding other adult members' earnings and social benefits, and then distributing all the disposable income among the members of the household, whether equally (per person) or with respect to different needs levels (per equivalent unit).

In Table 2, the pre-1989 situation is presented for the Czech Republic and Poland only. A specific feature of that situation is the low correlation between personal earnings and household income. The strong wage equalization meant that it was not the individual earnings of an economically active person but rather the number of employed persons in the household that was important for determining the amount of disposable family income. The situation changed quickly in the first phase of the transition, and the early 1990s already saw a tremendous (in the Czech Republic) or substantial (in Poland) increase in this correlation as disparities in earnings grew and family social benefits were reduced. In theory, the same scheme and process also applied to Slovakia, for which 1988 data are missing.

While figures for 1986 and 1992 (the last year not included in Table 2) concerning Poland suggest that the situation there was similar to that in the former Czechoslovakia, the situation in Hungary was different. In this country, the association between personal earnings and family income was much stronger as a result of the larger disparities in earnings and the weaker effect of transfer income. Since 1990, the situation has changed considerably in all CEE countries. While the correlation between personal earnings and household income strengthened in the Czech Re-

Table 2. **Correlation Between Personal Earnings of Employees and Household Income Between the Late 1980s and 2007** (Pearson coefficients)

	Czech Republic				Hungary			
	1988	1996	2004	2007	1991	1999	2004	2007
Total disposable income								
All	0.28	0.44	0.48	0.41	0.61	0.67	0.51	0.49
Men	0.32	0.54	0.56	0.49	0.72	0.71	0.68	0.55
Women	0.31	0.39	0.41	0.36	0.48	0.63	0.30	0.41
Income per capita								
All	0.18	0.50	0.58	0.49	0.59	0.64	0.59	0.57
Men	0.17	0.56	0.63	0.53	0.66	0.63	0.66	0.60
Women	0.31	0.49	0.54	0.50	0.57	0.68	0.55	0.55
	Poland				Slovakia			
	1986	1995	2004	2007	1992	1996	2004	2007
Total disposable income								
All	0.33	0.42	0.63	0.62	0.40	n.a.	0.47	0.40
Men	0.39	0.48	0.65	0.72	0.46		0.52	0.47
Women	0.24	0.37	0.61	0.48	0.35		0.42	0.32
Income per capita								
All	0.35	0.44	0.68	0.62	0.49		0.59	0.56
Men	0.40	0.46	0.67	0.69	0.51		0.58	0.62
Women	0.45	0.50	0.71	0.57	0.55		0.62	0.50

Source: Author's calculations based on the LIS Database and the EU-SILC 2005 (User Database, version 5, August 2009) and the EU-SILC 2008 (User Database, version 1, March 2010).

Notes: Observation units: persons in salaried employment. Household income is ascribed to each such person.

public in the early 1990s and in Poland in the late 1990s, it weakened in Hungary in the 2000s and remained stable in Slovakia. In any case, the differences between CEE countries are less significant at the end of the period under observation than they were at the beginning of the transition.

The household perspective, unlike that of individuals, is frequently employed in decomposition analyses, some of which we mentioned in the preceding section of this paper. To obtain this perspective, we determine to what extent the household disposable income is dependent on family size and composition, as well as on individual income sources. First we observe the sole effect of the number of economically active members and dependent children. Again, the data on the pre-1989 situation refers only to the Czech Republic and Poland (Table 3).

Except for Hungary, the data indicate a weakening but still very significant association between income and household size. The dependence of household income on the number of active earners decreased considerably in the first phase of the transition in the Czech Republic and Poland, somewhat less in Hungary until 2004, and later in Slovakia. The cross-sectional comparison with Austria and Germany based on EU-SILC surveys for 2007 reveals that the number of active earners is still more important for household income in postcommunist countries (except Poland), and that the number of children has a bigger redistributive effect on per capita income in the Czech Republic and Hungary than in the other two CEE countries, Austria, and Germany.

EU-SILC surveys make it possible to compare the current situation in individual countries. Tables 4–7 present cross-sectional comparisons of countries using the most recent EU-SILC data for 2008, which contain information on individual sources of yearly income in 2007. For the sake of brevity, the four CEE postcommunist countries are called "CEE countries," and Austria and Germany are called "Western countries." The structure of household income is compared first and inequality in individual income sources is compared second. Thirdly, the decomposition of inequality is provided, and lastly, three income concepts are used to observe the correlations between earnings and household income. In all these observations, the comparison only rarely shows any systemic differences between the two groups of countries.

In the structure of income (Table 4), earned income is obviously the prevailing source of household income everywhere. The earnings of household members other than the main couple are more important in CEE than in Western countries owing to the higher number of multigenerational families. Rather unexpected differences are found in the area of social transfer income, the share of which is lowest in the Czech Republic and Slovakia and highest in Austria and Hungary. There is only one systemic difference relating to income tax and insurance payments (unfortunately not separable in the EU-SILC data), which are lower in CEE countries than in Western countries. However, the level of taxation differs in CEE countries, ranging from 17 percent of gross household income in Slovakian households to 27 percent in Hungarian households.

Table 3. **Correlation Between Disposable Income in Employee Households and the Number of Household Members Between the Late 1980s and 2007** (Pearson coefficients)

	Czech Republic				Hungary			
	1988	1996	2004	2007	1991	1999	2004	2007
Total disposable income								
All members	0.55	0.36	0.36	0.44	0.39	0.33	0.32	0.37
Economically active	0.67	0.49	0.51	0.55	0.44	0.40	0.37	0.45
Dependent children	0.24	0.09	0.07	0.11	0.20	0.11	0.15	0.08
Income per capita								
All members	–0.54	–0.40	–0.41	–0.43	–0.40	–0.40	–0.30	–0.36
Economically active	–0.00	0.06	0.08	0.07	0.03	–0.05	0.01	0.07
Dependent children	–0.60	–0.43	–0.43	–0.46	–0.38	–0.38	–0.28	–0.40
	Poland				Slovakia			
	1986	1995	2004	2007	1992	1996	2004	2007
Total disposable income								
All members	0.29	0.25	0.14	0.22	0.58	n.a.	0.36	0.47
Economically active	0.51	0.40	0.33	0.28	0.59		0.47	0.61
Dependent children	–0.05	0.12	0.01	0.07	0.31		0.07	0.10
Income per capita								
All members	–0.55	–0.56	–0.38	–0.35	–0.56		–0.32	–0.35
Economically active	0.21	0.01	0.03	–0.03	0.03		0.03	–0.01
Dependent children	–0.63	–0.52	–0.35	–0.31	–0.57		–0.36	–0.38

Source: Author's calculations based on the LIS Database and the EU-SILC 2005 (User Database, version 5, August 2009) and the EU-SILC 2008 (User Database, version 1, March 2010).

Notes: Observation units: households headed by an employee. In each household, all members, economically active members, and dependent children are correlated with total disposable and per capita income.

Table 4. **Structure of Disposable Income in Employee Households by Source in 2007** (percent of gross household income)

	Czech Republic	Hungary	Poland	Slovakia	Austria	Germany
Total earned income	87.2	81.6	88.1	87.0	86.9	90.6
Earnings head	58.5	53.4	57.0	51.4	63.1	70.2
Earnings spouse	18.7	17.5	20.4	19.5	15.2	16.6
Earnings other persons	10.1	10.7	10.7	16.2	8.6	3.9
Social transfer income	11.8	17.7	11.3	12.8	11.4	7.2
Pension benefits	4.9	7.2	7.5	7.7	4.8	1.9
Other benefits	6.9	10.5	3.9	5.1	6.6	5.3
Other income	1.1	0.7	0.6	0.2	1.7	2.2
Total gross income	100.0	100.0	100.0	100.0	100.0	100.0
Tax and insurance	20.4	26.8	25.4	16.9	28.8	29.6
Income tax and insurance	20.4	26.5	25.3	16.8	28.8	29.3
Other tax	0.1	0.3	0.2	0.2	—	0.3
Total disposable income	79.6	73.2	74.6	83.1	71.2	70.4

Source: Author's calculations based on the EU-SILC 2008 (User Database, version 1, March 2010).

Table 5. **Inequality of Individual Sources of Disposable Income in Employee Households in 2007** (Gini coefficients)

	Czech Republic	Hungary	Poland	Slovakia	Austria	Germany
Total earned income	0.32	0.37	0.37	0.31	0.34	0.33
Earnings head	0.28	0.35	0.37	0.26	0.32	0.32
Earnings spouse	0.68	0.73	0.71	0.62	0.75	0.75
Earnings other persons	0.86	0.86	0.86	0.80	0.88	0.93
Social transfer income	0.64	0.55	0.71	0.64	0.68	0.70
Pension benefits	0.86	0.84	0.83	0.81	0.92	0.96
Other benefits	0.71	0.60	0.80	0.70	0.66	0.69
Other income	0.98	1.00	0.99	0.96	0.83	0.77
Total gross income	0.27	0.31	0.33	0.27	0.32	0.31
Tax and insurance	0.39	0.48	0.37	0.38	0.42	0.42
Income tax and insurance	0.39	0.48	0.37	0.38	0.42	0.42
Other tax	0.73	0.54	0.71	0.49	—	0.72
Total disposable income	0.25	0.27	0.32	0.26	0.29	0.29
Reduction of inequality of earned income by transfer income and taxation in percent	78	73	86	84	85	88

Source: Author's calculations based on the EU-SILC 2008 (User Database, version 1, March 2010).

Table 6. **Gini Decomposition of Disposable Income in Employee Households by Source in 2007**

	Czech Republic	Hungary	Poland	Slovakia	Austria	Germany
Total earned income	1.25	1.30	1.25	1.15	1.29	1.32
Earnings head	0.55	0.61	0.65	0.38	0.68	0.81
Earnings spouse	0.40	0.38	0.38	0.31	0.37	0.41
Earnings other persons	0.30	0.31	0.23	0.45	0.24	0.10
Social transfer income	0.06	0.19	0.08	0.11	0.17	0.07
Pension benefits	0.04	0.14	0.09	0.09	0.11	0.03
Other benefits	0.02	0.05	–0.01	0.02	0.06	0.04
Other income	0.04	0.03	0.02	0.00	0.04	0.05
Total gross income	1.35	1.52	1.35	1.26	1.50	1.44
Tax and insurance	0.35	0.52	0.35	0.26	0.50	0.44
Income tax and insurance	0.35	0.52	0.35	0.26	0.50	0.44
Other tax	0.00	0.00	0.00	0.00	—	0.00
Total disposable income	1.00	1.00	1.00	1.00	1.00	1.00

Source: Author's calculations based on the EU-SILC 2008 (User Database, version 1, March 2010).

Table 7. **Correlation Between Personal Earnings and Disposable Income in Employee Households** (Pearson coefficients) **in 2007**

	Czech Republic	Hungary	Poland	Slovakia	Austria	Germany
Total disposable income						
Earnings head	0.65	0.61	0.79	0.61	0.80	0.75
Earnings spouse	0.53	0.48	0.48	0.48	0.49	0.50
Earnings other persons	0.46	0.47	0.32	0.61	0.33	0.26
Total earned	0.89	0.84	0.95	0.92	0.92	0.90
Per capita income						
Earnings head	0.58	0.60	0.69	0.61	0.69	0.56
Earnings spouse	0.34	0.35	0.38	0.26	0.34	0.32
Earnings other persons	0.17	0.25	0.09	0.26	0.06	0.07
Total earned	0.63	0.67	0.73	0.60	0.71	0.62
Income per equivalent unit						
Earnings head	0.70	0.68	0.77	0.70	0.84	0.70
Earnings spouse	0.44	0.43	0.45	0.39	0.43	0.44
Earnings other persons	0.25	0.31	0.14	0.37	0.11	0.12
Total earned	0.79	0.79	0.85	0.78	0.88	0.80

Source: Author's calculations based on the EU-SILC 2008 (User Database, version 1, March 2010).

Notes: Income per capita and income per equivalent unit are weighted by household size. For equivalent units, the standard EU adjustment is applied (see note to Table 1).

Regarding the inequality of individual income sources (Table 5), there are no systemic differences between CEE and Western countries. Earned income is the most differentiated in Hungary and Poland. Transfer income is more differentiated in Western countries than in CEE countries, except Poland. The biggest differences between countries are in taxes and social insurance contributions, and there are two CEE countries that figure at the two extremes of the disparity pole: Poland has the smallest disparities and Hungary the largest. The reduction of inequality in earned income by every channel of redistribution is strongest in Hungary and quite strong in the Czech Republic, while it is much weaker in all the other countries.

In addition, there are no systemic differences connected with the effect of individual income sources on inequality of disposable income (Table 6). For the most part, the differences between CEE and Western countries are not great, but sometimes it is possible to identify a special "country-specific" feature, such as the effect of earnings of household members other than the main couple in Slovakia, the effect of pension benefits in employee households in Hungary, or the high effect of the head of household's salary on total disposable income in Germany. As for the redistribution effect of taxation, it is significantly higher in Western countries than in CEE countries, with the exception of Hungary, which conforms to the "Western" pattern.

Focusing on earned income only, we again see this lack of systemic differences in the correlations between individual earnings and household income, which this time is adjusted to per capita and per EU equivalent unit as well (Table 7). The picture varies depending on the given income concept and the selection of households. Only two consistent cases can be found throughout: Austria (then Poland), which conforms to a "paternalistic" model in which the head of household is the most important for family income, and Slovakia, which corresponds to a "multigenerational" model in which the earnings of other household members are as important as the earnings of the head of household's spouse.

Conclusion

Various sources confirm that earnings disparities and income inequality rose more or less in all four CEE countries after 1989. This is apparent in the individual countries in various phases of their transition. In contrast and somewhat surprisingly, no increase of income inequality occurred from 2004 to 2007, according to the EU-SILC surveys. Increasing income inequality is naturally not a feature specific to transition countries but is a general occurrence documented to varying degrees and at different periods in most OECD countries (Atkinson 2008; OECD 2008). Nevertheless, in the two "Western" countries taken as benchmark countries here, there was very little to no increase.

For Austria, Atkinson (2008, p. 141) reported on social security data showing a nearly stable Gini coefficient of 0.31 from 1981 to 2003. Biffl (2007) documented

increasing inequality in equivalent income per individual, with the Gini coefficient rising from 0.24 in the mid-1980s to just 0.26 in the mid-2000s. In Germany, the development of income equality differed in the two parts of the country. Using the survey German Socio-Economic Panel (GSOEP), Brück and Peters (2009) compared total gross income per individual in East and West Germany between 1992 and 2007 and found rising inequality in the East (Gini from 0.27 to 0.30) against stable inequality in the West (Gini 0.37). The LIS Inequality and Poverty Key Figures reported a Gini of equivalent income rising only from 0.26 in 1989 to 0.28 in 2000 for Germany as a whole.

Of course, it is not easy—if at all fully possible—to distinguish between transitional and other factors behind an increase or decrease in income inequality. Milanovic identified rising wage disparities as the most important factor driving overall inequality upward, as they caused a "hollowing out of the middle" related to "the movement of state-sector workers into either 'rich' private sector activity or 'poor' unemployment" (1999, p. 321). Hölscher noted: "Parallel to the demand-shift-story of Western industrialised countries, in the transition countries a shift from state sector employment to private sector employment explains rising inequality in earnings and finally rising general inequality" (2006, p. 305).

In a discussion of how the middle class was neglected during the early transition, Večerník (1999) described the constraints on small businesses and low remuneration in public sectors such as education and health services. However, probably the main reason for the squeeze in the middle of the income distribution was the relative fall in wages in the business sector, which decreased from 115 percent of the average in 1989 to 104 percent in 1996 and only later improved slightly. The thesis about the private-sector effect on increasing income disparities relates more to self-employment and small businesses, where, however, the relevant information is somewhat scarce (Večerník 2011).

An important source of the change in disparities under the transition was the better remuneration skilled workers enjoyed. While the standard explanation for the better remuneration is that the demand for skilled workers increased because of the higher productivity of their work, in CEE postcommunist countries the same workers started to receive better wages for the same work just because the political regime had changed and the economic system was liberalized. This was particularly true in the Czech Republic, which had the greatest equalization of earnings under the previous regime and the smallest wage disparities by education. This may also have been a source of the bigger subsequent increase in these disparities and consequently also in inequality of household income (Večerník 2009, p. 79).

It is also necessary to mention the problem of data quality. Milanovic (1999, pp. 322–331) has described the "inequality bias" that exists in comparisons of surveys on the pretransition and transition periods. He rightly notes that refusal rates increased and the coverage of wage and social transfer income deteriorated during the transition, such that reported incomes are now more underestimated than in

the past. Taking the countries of interest to us into account, he estimates, however, that in Hungary and Poland the increase in inequality is slightly overestimated: in Hungary because consumption of goods produced at home (generally greater for the poorer households) is not registered and in Poland because well-off segments of the population are absent from pretransition surveys.

Milanovic's study does not include the Czech Republic, where, in contrast, the increase in inequality is rather underestimated because the method of data collection used in income surveys changed substantially. While under the communist regime, the most important sources of income were directly transferred to statisticians by the state administration, only self-reporting has been possible since 1989. Moreover, people also feel less obliged to answer questions on income: while in the 1988 Microcensus the nonresponse rate was only 4 percent, in 1992 it amounted to 16 percent and in 2002 it had reached 28 percent. The coverage of income observed in surveys in comparison with the data provided by national accounts decreased from 86 percent in 1988 to 76 percent in 2002.

EU-SILC data indirectly signal the existence of some informal activities when household composition is examined. This varies considerably between CEE countries: nearly one-fifth of household members in Hungary and Poland are declared as "other adult persons" (i.e., not economically active persons, pensioners, or children) compared to just 12 percent in the Czech Republic and 7 percent in Slovakia. It is likely that most of these people are economically active in some way, whether as family workers on a household farm or firm, or outside the home performing odd jobs in the informal sector. This might also explain why the link between the number of economically active persons in the household and income (see Table 3) is much weaker in Hungary and Poland than in the Czech Republic and Slovakia.

Nevertheless, even with the best possible data on personal and household incomes available for analysis, there is still much we do not know about income sources, development, and inequality. In fact, we cannot expect that income statistics will ever be capable of describing real incomes in full. However, not having any other source of general information about income distribution, we cannot do more than examine the surveys from various angles and try, from time to time, to look beyond the data.

Note

1. See Luxembourg Income Study (LIS) Database, March–June 2010, for multiple countries (www.lisdatacenter.org).

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